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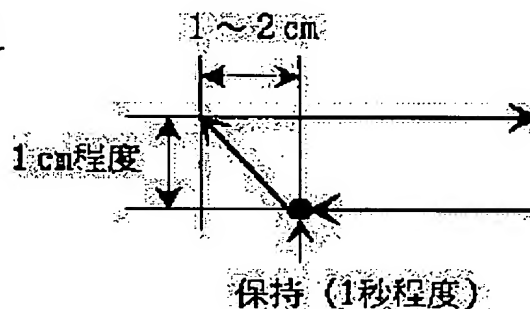
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(54) MASSAGE MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a sufficient finger pressure effect by a massage machine using rubbing balls.

SOLUTION: The machine is provided with a massage unit (4) having the rubbing balls (5) and (6). The machine is also provided with a finger pressure massage mode for pushing the balls (5) and (6) into a part to be treated from initial positions so as to pressurize the part to be treated, keeping the rubbing balls (5) and (6) in a pressurized state for a prescribed time and, then, returning them to the initial positions.



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CLAIMS

[Claim(s)]

[Claim 1] the massage unit which formed the massaging ball -- providing -- a massaging ball -- from an initial valve position -- -ed -- free medical treatment -- a section side -- pushing in -- -ed -- free medical treatment -- the massage machine characterized by having the acupressure massage mode pulled back to an initial valve position after carrying out predetermined time maintenance of this massaging ball, where the section is pressed and pressed.

[Claim 2] The massage machine according to claim 1 characterized by inserting the massage actuation to the front after carrying out predetermined time maintenance of this massaging ball in the condition of having pressed before pulling back to the initial valve position.

[Claim 3] The massage machine according to claim 1 or 2 characterized by having combined alternatively or suitably out of two or more massage modes containing acupressure mode, and making a massage possible.

[Claim 4] While constituting at a chair ceremony equipped with a seat body and a back board, the elevator style which makes it go up and down a massage unit along with a back board is prepared. furthermore, this massage unit is made to rock a massaging ball to a cross direction -- striking -- business -- a motor -- eccentric rotation of the massaging ball is carried out -- rubbing -- business -- a massage machine given in any 1 term of claims 1-3 which arrange the massaging ball drive unit possessing a motor, and are moreover characterized by constituting this massaging ball drive unit possible [an attitude] to a cross direction the whole massaging ball by the motor for an attitude.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention -- -ed -- free medical treatment -- it is related with the massage machine which has the acupressure mode which presses and massages the section.

[0002]

[Description of the Prior Art] The massage unit which formed the massaging ball is

provided conventionally, there is a massage machine whose massage combined alternatively or suitably out of two or more massage modes, and was enabled, and generally what was constituted at a chair ceremony possessing a seat body and a back board has spread so that it can massage, after the user has relaxed also in this kind of massage machine.

[0003] Moreover, it had two or more driving sources, such as the main driving source which it rubs [driving source] to a massaging ball and operates it as a general configuration of the above-mentioned massage unit, the ** driving source before and after making a massaging ball drive to a cross direction, and a driving source for the upper and lower sides which makes a massaging ball drive in the vertical direction, and combining the drive by these driving sources, it rubbed and the mode and a massage strike and according to various massage modes, such as the mode, rolling mode, and acupressure mode, were enabled.

[0004]

[Problem(s) to be Solved by the Invention] however, the acupressure mode of the above-mentioned conventional massage machine -- a massaging ball -- from an initial valve position -- marching out -- -ed -- free medical treatment -- if the section is pressed, it will retreat immediately, actuation of returning to an initial valve position will only be repeated, the body will escape by press, and it will become with the affected part -- -ed -- free medical treatment -- the force which presses the section was insufficient and it was what cannot be said to be that there was also too little time amount to press and the massage effectiveness came out of it enough.

[0005] Therefore, satisfaction could not be given to a user but it was giving object insufficient.

[0006] This invention aims at offering the massage machine which can solve the above-mentioned technical problem.

[0007]

[Means for Solving the Problem] then, the massage unit which formed the massaging ball in this invention according to claim 1 -- providing -- a massaging ball -- from an initial valve position -- -ed -- free medical treatment -- a section side -- pushing in -- -ed -- free medical treatment -- where the section is pressed and pressed, after carrying out predetermined time maintenance of this massaging ball, we decided to have the acupressure massage mode pulled back to an initial valve position.

[0008] Moreover, in this invention according to claim 2, after carrying out predetermined time maintenance of this massaging ball in the condition of having pressed, we decided to insert the massage actuation to the front, by the time it pulls

back to an initial valve position.

[0009] Furthermore, in this invention according to claim 3, it combined alternatively or suitably out of two or more massage modes containing acupressure mode, and the massage was made possible.

[0010] While constituting from this invention according to claim 4 at a chair ceremony equipped with a seat body and a back board further again The elevator style which makes it go up and down a massage unit along with a back board is prepared. furthermore, this massage unit is made to rock a massaging ball to a cross direction -- striking -- business -- eccentric rotation of a motor and the massaging ball is carried out -- rubbing -- business -- the massaging ball drive unit possessing a motor was arranged, and, moreover, the motor for an attitude constituted this massaging ball drive unit possible [an attitude] to the cross direction the whole massaging ball.

[0011]

[Embodiment of the Invention] the massage unit in which this invention formed the massaging ball -- providing -- a massaging ball -- from an initial valve position -- -ed -- free medical treatment -- a section side -- pushing in -- -ed -- free medical treatment -- where the section is pressed and pressed, after carrying out predetermined time maintenance of this massaging ball, it has the acupressure massage mode pulled back to an initial valve position.

[0012] That is, since the affected part and a jar can be used acupressure firmly, acupressure by the acupressure therapist becomes the same possible [offering the massage machine which has the high acupressure mode of the massage effectiveness].

[0013] Moreover, since the fault in which the massage actuation to the front can also be inserted by the time it pulls back to an initial valve position, the body escapes by thrust, and the acupressure effectiveness fades is cancelable after carrying out predetermined time maintenance of this massaging ball in the condition of having pressed, the massage effectiveness can be heightened more.

[0014] Furthermore, out of two or more massage modes not only containing the above-mentioned acupressure mode but this acupressure massage mode, it can combine alternatively or suitably and can constitute possible [a massage].

[0015] As other massage modes, it rubs, and a variegated massage is attained by the mode, acupressure mode, and striking and there being the mode, rolling mode, etc., and choosing or combining and massaging each of these modes, and sufficient massage effectiveness can be acquired, for example.

[0016] By the way, it is desirable to constitute at a chair ceremony equipped with a

seat body and a back board as a gestalt of a massage machine.

[0017] Namely, while constituting at a chair ceremony equipped with a seat body and a back board The elevator style which makes it go up and down said massage unit along with a back board is prepared. furthermore, this massage unit is made to rock a massaging ball to a cross direction -- striking -- business -- a motor -- eccentric rotation of the massaging ball is carried out -- rubbing -- business -- the massaging ball drive unit possessing a motor can be arranged, and, moreover, the motor for an attitude can constitute this massaging ball drive unit possible [an attitude] to a cross direction the whole massaging ball.

[0018] It can also perform easily being able to enlarge change of the contact depth to the body of a massaging ball by enabling the attitude of a massaging ball drive unit, as mentioned above, and controlling by this configuration to be able to carry out fixed time amount maintenance of the massaging ball moreover in the advance location, while a user can receive a massage in the condition of having relaxed with the easy posture.

[0019] Moreover, a variegated massage is attained by class doubling with rocking of a massaging ball, eccentric rotation, and an order attitude, and the massage effectiveness can be heightened more.

[0020]

[Example] The massage unit which prepared the typical explanatory view of the massage machine applied to this invention at drawing 1 in drawing 2 - drawing 7 at this massage machine is shown.

[0021] The massage machine 1 applied to this example as shown in drawing 1 is made into the chair type, and the back connected free [a reclining] also hung it down to the seat body 2 which carried out receipt arrangement of the air cell which is not illustrated, and enabled the massage of a hip, and this seat body 2, and it is equipped with 3. Among drawing, the guide-peg attaching part and 1b to which, as for M, a user and 1a hold User's M guide peg are an armrest, and into said guide-peg attaching part 1a, although they do not illustrate this, either, receipt arrangement of the air cell is carried out, and they can carry out the air massage of the guide peg.

[0022] moreover, the remote control whose R made operational actuation of the whole power-source OFF and massage machine from powering on to this massage machine 1 -- it is -- the various switch carbon buttons S1 -- wireless connection is made with the control unit 16 which was equipped with the display A which consists of a control unit S which allotted ..., and liquid crystal, and was arranged in the lower part of the seat body 2. 19 is the remote control stowage established in the front flank of

this armrest 1b. In addition, remote control R can also be considered as the configuration attached in the top-face section of said armrest 1b free [attachment and detachment]. moreover, said various switch carbon buttons S1 prepared in the concrete configuration of this remote control R, and this remote control R .. is explained in full detail behind.

[0023] The massage unit 4 which is the main function part of this massage machine 1 is arranged, and the variegated massage of the ability of the automatic massage course massaged by the program beforehand defined by the massaging ball drive unit 9 prepared in this massage unit 4 and an individual function to perform an individual massage can be carried out so that said back may also hang down, this back may also hang down in three and rise and fall may become possible along with 3.

[0024] The massaging ball drive unit 9 is struck for making it operate by striking by making a cross direction rock the massaging balls 5 and 6 of a right-and-left pair, as shown in drawing 1 - drawing 7 . Namely, the device 7, in order to make it operate by rubbing by carrying out eccentric rotation of the massaging balls 5 and 6 -- rubbing -- a device 8 -- providing -- **** -- moreover -- this massaging ball drive unit 9 -- the side front (side which touches a user) of a back board 3 -- turning -- an attitude -- it is constituted movable. Therefore, powerful acupressure actuation and the complicated thing for which it 3D Rubs and actuation is offered are possible.

[0025] In addition, although this example took and explains the so-called chair-type massage machine which supports a user's body to the example with the back board 3, the so-called bed-type massage machine which supports a user's body not only on this but on a bed may be used. moreover, the massaging ball drive unit 9 -- the side front (side which touches a user) of a back board 3 -- turning -- an attitude -- as long as it is the configuration constituted movable, the thing which strikes, rubs with a device 7, is not necessarily equipped with the device 8, and is equipped with either, or the thing of structure which made massaging balls 5 and 6 only project may be used.

[0026] Below, the structure of each part of the massage machine 1 concerning this example and its actuation are explained concretely.

[0027] The seat body 2 and the [back board 3] book massage machine 1 are equipped with a hip, a peach, the leg (two places), and the air cell for an air massage that is not illustrated to a total of four places, and are enabling the air massage of this part. That is, the air cell is arranged in said guide-peg attaching part 1a connected with the front flank of said seat body 2 and this seat body 2.

[0028] Moreover, as shown in drawing 1 , the seat body 2 has attached in the interior of the taking-a-seat section 14 the weight detection sensor 15 which served as the

taking-a-seat detection means for a pressure to detect that the user has sat down, and this weight detection sensor 15 is connected to said control unit 16. It is the leveling pad which prepared LS in the upper limit limit switch among drawing, and prepared 17 in the inferior-surface-of-tongue section of the seat body 2, and the massage machine 1 whole is held on a floor line.

[0029] The back board 3 is connected with this seat body 2 free [a reclining] according to the electric reclining device which is not illustrated. In addition, the detection sensor 18 was formed in the electric reclining device whenever [reclining-angle / which detects whenever / tilt-angle / of a back board 3], and this is also connected to said control unit 16.

[0030] If, as for this electric reclining device, the power source is switched on, reclining actuation will always be attained by button grabbing, and moreover, air actuation of the air massage which described above at the time of reclining actuation is suspended (exhaust air). And if the air massage was carried out, an air massage is possible [air actuation returns, and] for it, if a reclining carbon button is canceled again from the beginning of a massage part.

[0031] Moreover, while attaching the racks 10 and 11 of a right-and-left pair in the regions-of-back side of the back board 3 interior along with a back board 3, these racks 10 and 11 were made to meet and the cross-section KO character-like guide rails 12 and 13 of a Uichi Hidari pair are attached.

[0032] The [massage unit 4] massage unit 4 As shown in drawing 1 - drawing 7 , while attaching the motor 23 for rise and fall as a mechanical component for rise and fall for making the right-hand side lower part of the abbreviation rectangle core box-like massage unit casing 22 go up and down the massage unit 4 The drive gear 25 is attached in the driving shaft 24 of the motor 23 for the said rise and fall, the gear change gear 26 is meshed on this drive gear 25, and interlocking connection of the drive worm 27 is carried out further at this gear change gear 26.

[0033] On the other hand, in the lower part of the massage unit casing 22 While meshing the gear section which has attached the rise-and-fall shaft 28 which carried out the distraction crosswise [right-and-left] free [rotation], and was formed in the right-hand side lateral surface of this rise-and-fall shaft 28, and said drive worm 27 The right-and-left edge of the rise-and-fall shaft 28 is made to project to the method of an outside of the massage unit casing 22, and the racks 10 and 11 which attached pinion gears 30 and 31 in this right-and-left edge made to project, and attached these pinion gears 30 and 31 in the back board 3 are meshed further. The rotary encoder 91 as an amount detection means for rise and fall of drives for detecting the amount

(include angle) which the rise-and-fall shaft 28 drove by the motor 23 for rise and fall (rotation) is arranged in the rise-and-fall shaft 28. 32 are motor casing which contained the motor 23 for rise and fall attached in the right-hand side lower part of the massage unit casing 22 among drawing. In addition, the motor 23 for rise and fall and the rotary encoder 91 are connected to the control unit 16 which the back also hung down and was arranged in the lower part of 3 as shown in drawing 9 .

[0034] Moreover, the massage unit 4 is attached in the right-and-left side upper part of the massage unit casing 22 for the guide shafts 33 and 34 of a Uichi Hidari pair, enabling free rotation. The edge of each guide shafts 33 and 34 is made to project to the method of an outside of the massage unit casing 22. Guide rollers 35 and 36 are attached in the edge of these guide shafts 33 and 34 made to project respectively free [rotation], and the interior of the guide rails 12 and 13 of the shape of a cross-section KO character which attached these guide rollers 35 and 36 in the back board 3 is inserted, enabling free sliding.

[0035] The massaging ball drive unit 9 possessing the massaging balls 5 and 6 which massage by contacting User's M body through the surface section of a back board 3 is arranged in a cross direction rockable at this massage unit 4.

[0036] That is, the massage unit 4 turned to the cross direction the massaging ball drive unit casing 37 which constitutes the massaging ball drive unit 9, and has attached it in the center section of the rise-and-fall shaft 28 arranged where the distraction is carried out to the lower part of the massage unit casing 22 towards the right-and-left cross direction free [rocking], and the massaging ball drive unit 9 enables it to rock it towards a cross direction by using said rise-and-fall shaft 28 as the rocking supporting point. With rocking to this cross direction, the massaging ball drive unit 9, as a result massaging balls 5 and 6 will move to a cross direction.

[0037] An attitude migration device to make a cross direction rock this massaging ball drive unit 9, and carry out attitude migration The motor 38 for an attitude as a mechanical component for an attitude for carrying out attitude migration of the massaging ball drive unit 9 is attached in the left-hand side upper part of the massage unit casing 22. While attaching the drive gear 40 in the driving shaft 39 of the motor 38 for the said attitude and meshing the gear change gear 41 on this drive gear 40, interlocking connection of the drive worm 42 is carried out at this gear change gear 41.

[0038] moreover, in the upper part of the massage unit casing 22 The attitude shaft 43 which carried out the distraction towards the right-and-left cross direction is attached free [rotation], and the gear section (illustration abbreviation) formed in the left-hand side lateral surface of this attitude shaft 43 and said drive worm 42 are

meshed. Further While attaching the pinion gears 44 and 45 of a Uichi Hidari pair in the halfway section of said attitude shaft 43 The racks 46 and 47 of the shape of radii corresponding to the upper part of the massaging ball drive unit casing 37 of a Uichi Hidari pair are attached with said pinion gears 44 and 45, and said pinion gears 44 and 45 are meshed on these racks 46 and 47. The rotary encoder 92 as an amount detection means for an attitude of drives for detecting the amount (include angle) which the attitude shaft 43 drove by the motor 38 for an attitude (rotation) is arranged in the attitude shaft 43. Motor casing for 48 to contain the motor 38 for an attitude attached in the left-hand side upper part of the massage unit casing 22 and 49 are the bearing for supporting the attitude shaft 43, enabling free rotation among drawing. In addition, the motor 38 for an attitude and the rotary encoder 92 are connected to a control unit 16 as shown in drawing 9 .

[0039] Moreover, turn the pieces 50 and 51 of rack support of a Uichi Hidari pair to the method of an outside, and the above-mentioned massaging ball drive unit 9 forms them in the upper part of the core box-like massaging ball drive unit casing 37, as shown in drawing 2 - drawing 4 . While attaching the radii-like racks 46 and 47 in the edge of each pieces 50 and 51 of rack support, respectively The piece 52 of rise-and-fall shaft support of the letter of the front view abbreviation for U characters was formed in the before [the massaging ball drive unit casing 37] side lower part, and bearing 53 and 54 was attached in the right-and-left flank of this piece 52 of rise-and-fall shaft support, respectively, and is further inserted in the coaxial carriers 53 and 54 for the rise-and-fall shaft 28 at it, enabling free rotation.

[0040] Furthermore, the massaging ball drive unit 9 was arranged in the interior of the massaging ball drive unit casing 37, was struck, rubbed with the device 7, and is equipped with the device 8.

[0041] It attaches, after the driving shaft 58 turned the motor 57 up and has projected it. as it strikes and a device 7 is shown in drawing 2 - drawing 5 , in order to strike massaging balls 5 and 6 in the left-hand side lower part of the massaging ball drive unit casing 37 and to operate the massaging ball drive unit 9 in it -- striking -- business -- as a mechanical component -- striking -- business -- this driving shaft 58 -- striking -- business -- while carrying out interlocking connection of the drive worm 59, the upper part of the massaging ball drive unit casing 37 was made to carry out the distraction towards the right-and-left cross direction -- striking -- business -- the rotation shaft 60 is attached, enabling free rotation.

[0042] and the left-hand side section of the rotation shaft 60 for the said **** -- striking -- business -- the follower worm gear 61 -- fixing -- the follower worm gear

61 for the said **** -- said -- striking -- business, while meshing the drive worm 59 said -- striking -- business -- the right-and-left edge of the rotation shaft 60 -- striking -- business -- eccentric shafts 62 and 63 -- the axis of the eccentric shafts 62 and 63 for the said **** -- striking -- business -- it forms successively, where eccentricity is carried out up and down from the axis of the rotation shaft 60, respectively, and the massaging ball devices 64 and 65 are considered as the configuration which carried out interlocking connection, respectively at the eccentric shafts 62 and 63 for the said ****. striking -- business -- the rotation shaft 60 -- striking -- business -- a motor 57 -- striking -- business -- in order to detect the amount (include angle) which the rotation shaft 60 drove (rotation) -- striking -- business -- the rotary encoder 93 as an amount detection means of drives is arranged. the inside of drawing, and 66 -- striking -- business -- it is the bearing for supporting the driving shaft 58 of a motor 57, enabling free rotation. in addition -- striking -- business -- the motor 57 and the rotary encoder 93 are connected to the control unit 16 which the back also hung down and was arranged in the lower part of 3 as shown in drawing 9 .

[0043] It attaches, after the driving shaft 68 turned the motor 67 up and has projected it. as it rubs and a device 8 is shown in drawing 2 - drawing 6 on the other hand, in order to rub massaging balls 5 and 6 in the right-hand side lower part of the massaging ball drive unit casing 37 and to operate the massaging ball drive unit 9 in it -- rubbing -- business -- as a mechanical component -- rubbing -- business -- The follower worm gear 70 is fitted in loosely enabling free rotation. this driving shaft 68 -- rubbing -- business -- while carrying out interlocking connection of the drive worm 69 -- striking -- business -- the right-hand side section of the rotation shaft 60 -- rubbing -- business -- Driving pulleys 71 are formed successively. the follower worm gear 70 for the said **** -- said -- rubbing -- business -- while meshing the drive worm 69 -- rubbing -- business -- the follower worm gear 70 -- rubbing -- business -- further The rotation shaft 72 is attached enabling free rotation. the distraction was carried out to the lower part of the massaging ball drive unit casing 37 towards the right-and-left cross direction -- rubbing -- business -- the right-hand side section of the rotation shaft 72 for the said **** -- rubbing -- business -- the follower pulley 73 -- attaching -- the follower pulley 73 for the said **** -- said -- rubbing -- business -- between driving pulleys 71, the suspension of the transmission belt 74 is carried out, and it is constituted. furthermore -- said -- rubbing -- business -- in the right-and-left edge of the rotation shaft 72, interlocking connection of the massaging ball devices 64 and 65 is carried out, respectively. rubbing -- business -- the rotation

shaft 72 -- rubbing -- business -- a motor 67 -- rubbing -- business -- the rotary encoder 94 as an amount detection means for rise and fall of drives for detecting the amount (include angle) which the rotation shaft 72 drove (rotation) is arranged. the inside of drawing, and 75 -- rubbing -- business -- it is the bearing for supporting the driving shaft 68 of a motor 67, enabling free rotation. in addition -- rubbing -- business -- the motor 67 and the rotary encoder 94 are connected to the control unit 16 which the back also hung down and was arranged in the lower part of 3 as shown in drawing 9 .

[0044] The massaging ball arm base materials 76 and 77 of a Uichi Hidari pair are attached in the right-and-left edge of the rotation shaft 72 in the shape of an inclination, after the upper part of these massaging ball arm base materials 76 and 77 has turned to the method of an outside. moreover, the massaging ball devices 64 and 65 are shown in drawing 2 - drawing 6 -- as -- rubbing -- business -- It attaches in eccentric shafts 62 and 63. the posterior part of these massaging ball arm base materials 76 and 77 -- the point of the interlocking arms 78 and 79 -- respectively -- interlocking successive formation -- carrying out -- the end face section of these interlocking arms 78 and 79 -- striking -- business -- further The end face section of the massaging ball support arms 80 and 81 was attached in the before [the massaging ball arm base materials 76 and 77] side upper part, and massaging balls 5 and 6 are attached in the point of these massaging ball support arms 80 and 81 free [rotation]. the inside of drawing, and 84 and 85 -- rubbing -- business -- it is a splicer for attaching the massaging ball arm base materials 76 and 77 in the right-and-left edge of the rotation shaft 72 free [rotation] in the inclination condition. In addition, the point and the massaging ball arm base materials 76 and 77 of the interlocking arms 78 and 79 are connected according to free joint structure.

[0045] And in this example, if the motor 38 for an attitude is driven through a control unit 16 using remote control R The attitude shaft 43 rotates through the drive gear 40, the gear change gear 41, and the drive worm 42. While pinion gears 44 and 45 rotate in connection with it, it moves along with racks 46 and 47, and the massaging ball drive unit casing 37 rocks towards a cross direction centering on the rise-and-fall shaft 28 by that cause, and massaging balls 5 and 6 are made to carry out attitude migration at a cross direction (refer to drawing 7).

[0046] In this example, as shown in drawing 8 , by making the massaging ball drive unit 9 move The stowed position which the back also hung down massaging balls 5 and 6 and was contained inside 3 (in drawing 8 , the tip of massaging balls 5 and 6 is located on the line shown with a sign L1.) The flush location which performs a very weak

massage (in drawing 8 , the tip of massaging balls 5 and 6 is located on the line shown with a sign L2.) The weak location which performs a weak massage (in drawing 8 , the tip of massaging balls 5 and 6 is located on the line shown with a sign L3.) A location while performing the massage of whenever [middle] (in drawing 8 , the tip of massaging balls 5 and 6 is located on the line shown with a sign L4.) The strong location (in drawing 8 , the tip of massaging balls 5 and 6 is located on the line shown with a sign L5.) which performs a strong massage, ***** which performs a very strong massage (in drawing 8) the tip of massaging balls 5 and 6 is located on the line shown by sign L6. It enables it to make six steps move. In addition, he is trying for the location of massaging balls 5 and 6 to show the strength of the massage force, and is trying to display the display about the strength of a massage as a little more than ["receipt", a "flush", "weakness", "inside", / "a little more than"], and "**" also in the display A of remote control R in this example corresponding to the above-mentioned L1 - L6.

[0047] The massage machine 1 concerning this example has composition which has been mentioned above, and by actuation of the control unit S prepared in remote control R, while a control unit 16 detects the amount of drives of each shafts 28, 43, 60, and 72 (rotation include angle) with the rotary encoders 91, 92, 93, and 94 as an amount detection means of drives, it operates as follows by making each motors 23, 38, 57, and 67 as a mechanical component drive.

[0048] That is, if the motor 23 for rise and fall as a mechanical component for rise and fall is driven with a control unit 16, the rise-and-fall shaft 28 will rotate, pinion gears 30 and 31 will run along with racks 10 and 11 in connection with it, and the massage unit 4 will carry out rise-and-fall migration along with a back board 3. In that case, the control unit 16 detected the rotation include angle of the rise-and-fall shaft 28 with the rotary encoder 91 as an amount detection means for rise and fall of drives, and has detected the amount of rise and fall of the massage unit 4. A rolling massage is attained by this actuation. In addition, the upper limit and the minimum location at the time of rise and fall of the massage unit 4 are regulated by the limit switch which is not illustrated.

[0049] Moreover, if the motor 38 for an attitude as a mechanical component for an attitude is driven with a control unit 16, pinion gears 44 and 45 will rotate through the drive gear 40, the drive worm 42, and the attitude shaft 43, the racks 46 and 47 attached in the massaging ball drive unit casing 37 in connection with it will move, the massaging ball drive unit casing 37 will carry out attitude migration at a cross direction, and massaging balls 5 and 6 will carry out attitude migration at a cross direction (refer

to drawing 6). In that case, the control unit 16 detected the rotation include angle of the attitude shaft 43 with the rotary encoder 92 as an amount detection means for an attitude of drives, and has detected the amount of attitudes of the massaging ball drive unit 9 (massaging balls 5 and 6). An acupressure massage is attained by this actuation.

[0050] moreover, the control unit 16 -- striking -- business -- as a mechanical component -- striking -- business, if a motor 57 is driven Eccentric shafts 62 and 63 rotate up and down by turns. striking -- business -- the drive worm 59 -- striking -- business -- the follower worm gear 61 -- minding -- striking -- business -- the rotation shaft 60 -- rotating -- it -- following -- striking -- business -- thereby The interlocking arms 78 and 79 function as a crank, the massaging ball arm base materials 76 and 77 rock forward and backward, and massaging balls 5 and 6 operate by rocking and striking to a cross direction by turns. that time -- a control unit 16 -- striking -- business -- the rotary encoder 93 as an amount detection means of drives -- striking -- business -- the rotation include angle of the rotation shaft 60 was detected, and the amount of rocking of massaging balls 5 and 6 is detected. This actuation strikes and a massage becomes possible.

[0051] moreover, the control unit 16 -- rubbing -- business -- as a mechanical component -- rubbing -- business -- if a motor 67 is driven -- rubbing -- business -- the drive worm 69 -- rubbing -- business -- the follower worm gear 70 -- rubbing -- business -- a driving pulley 71 and the transmission belt 74 -- rubbing -- business -- the follower pulley 73 -- minding -- rubbing -- business -- the rotation shaft 72 rotates, the massaging ball arm base materials 76 and 77 rotate in connection with it, and it operates by massaging balls' 5 and 6 carrying out eccentric rotation, and rubbing to a cross direction. that time -- a control unit 16 -- rubbing -- business -- the rotary encoder 94 as an amount detection means of drives -- rubbing -- business -- the rotation include angle of the rotation shaft 72 was detected, and the amount of eccentric rotation of massaging balls 5 and 6 is detected. By this actuation, it rubs and a massage becomes possible.

[0052] And this massage machine 1 By driving each motors 23, 38, 57, and 67 as a mechanical component, while a control unit 16 detects the amount of drives of each shafts 28, 43, 60, and 72 (rotation include angle) with the rotary encoders 91, 92, 93, and 94 as an amount detection means of drives By combining each actuation which enables it to control the location of massaging balls 5 and 6 finely, and serves as the above-mentioned base a stretch rub and strike and according to acupressure and rolling and back **** which explain the shoulder of a user's body, the back, the waist,

etc. in full detail behind -- carrying out -- etc. -- it can massage in the variegated mode.

[0053] [Remote control R] The outline of the remote control R of the massage machine 1 applied to this example here, and various switch carbon buttons S1 prepared in this remote control R .. Actuation by actuation is explained. The remote control R concerning this example is a configuration with a closing motion lid, the explanatory view at the time of lidding is shown in drawing 10 , and it shows the explanatory view at the time of opening to drawing 11 .

[0054] The remote control R concerning this example is carrying out the rectangle configuration, and the center section serves as a closing motion type with the lid R1 of the right aperture which formed the hinge (not shown) in left-hand side so that it may illustrate. A is a display which consists of the above mentioned liquid crystal, at the time of individual actuation, is rubbed and displays operating state, such as existence of width of face and 3D, in a class of operation, speed, and strength.

[0055] Moreover, it supposes that the liquid crystal of Display A is backlit, and the color of a back light is enabling the two-color change of red and yellow. And when either is pushed among the various switches mentioned later, it is made to switch on the light, and he is trying to switch off this back light in 12 seconds after lighting (after a switch input).

[0056] Moreover, after the massage actuation by this massage machine 1 is completed, it is made to perform receipt actuation of the massaging ball drive unit 9, and Display A will be in an image screen-display condition, and after the completion of receipt actuation will be improper [of operation]. That is, at this time, it does not receive other than start/receipt carbon button S1 mentioned later. If start/receipt carbon button S1 is pushed, it will be in the condition which can be operated and selection of the individual actuation on Display A and selection of an automatic course will be attained.

[0057] The class of contents of a display in Display A has the following.

[0058] b) The display to which selection is urged (example: please choose the course of liking)

b) current free medical treatment -- the display (example: under a neck and a shoulder course, sideburns, and a shoulder position action) of the contents

c) The current position of massaging balls 5 and 6 (example: located in a height location or strength)

The display of NI information (example: the head should be firmly applied to a back board during "POINTONABI" actuation.)

e) Indicate the residual time by the timer. (A part for after O)

**) When a main power supply is switched on, display the contents which imagined the point NABISHI stem + motion. In addition, above-mentioned POINTONABI points out the actuation which detects a user's bodily shape, and it mentions later about the activity.

[0059] Moreover, he is trying for Display A to change the display of an individual function to the automatic course which are the open condition of a lid R1, and a closed state, and is later mentioned at the time of a halt of operation. And he is trying for the mode of a display not to change, once it starts actuation until following another function is chosen. Therefore, after opening a lid R1 and choosing an individual function, even if it shuts a lid R1, an individual function is continuable as it is.

[0060] next, the various switch carbon buttons S1 prepared in remote control R -- if .. is explained, in drawing 10 , S1 is the above-mentioned start/receipt carbon button, and when starting massage actuation, or in case it contains a massaging ball, it will be pushed.

[0061] If "start/receipt carbon button S1" is pushed in the time of a halt of operation, or the improper condition of operation, it will move to an upper limit location by : "receipt" in strength, and will be in the condition which can be operated by : "weakness" in strength after that, and massage selection or a course selection screen will be displayed on said display A.

[0062] Moreover, if "start/receipt carbon button S1" is pushed at the time of actuation, as shown in drawing 12 , massaging ball receipt actuation (it moves to an upper limit location by "receipt" in strength) will be performed, it will be in an improper condition of operation, and an image screen will be displayed on Display A. In addition, it is made to indicate the alphabetic character "under receipt" during receipt by flashing at Display A.

[0063] S2 is a pause carbon button, and actuation is suspended at the time of an automatic course, or it performs a halt of operation at the time of an individual function.

[0064] Current actuation is stopped in the time of an automatic course. That is, if the pause carbon button S2 is pushed at the time of an automatic course, as shown in drawing 13 , the alphabetic character "under pause" of Display A will blink during a pause. The count of a mode timer (15 minutes) / massage timer (30 minutes) is also halted (it does not reset). And if this pause carbon button S2 is again pushed during an automatic course pause, the alphabetic character "under pause" will disappear and actuation will be resumed from the middle. The count of a mode timer (15 minutes) /

massage timer (30 minutes) is also resumed. In addition, it does not receive during a pause other than "a pause" or "start/receipt carbon button S1." When carbon buttons other than "a pause" or "start/receipt carbon button S1" are pushed, it displays on Display A so that a pause may be canceled.

[0065] Moreover, if the condition of a pause continues for 10 minutes at the time of an automatic course, the condition of a pause is stopped, and he makes it : "receipt" in strength, and is trying to be in an improper condition of operation. Furthermore, if (under shoulder location detection being included) and the pause carbon button S2 are pushed at the time of an individual function, actuation will be suspended, and if the condition of a pause continues for 10 minutes, the condition of a pause is stopped, and he makes it : "receipt" in strength, and is trying to be in an improper condition of operation. Moreover, if receipt working and the "pause carbon button S2" are pushed, the inverse video of the alphabetic character of an "emergency shut down" will be carried out to the bottom of the flashing display "under receipt", and actuation will be suspended. At this time, it does not receive except "start/receipt carbon button S1", but if it pushes, receipt actuation will be performed again.

[0066] S3 is an automatic course carbon button, and starts automatic course actuation.

[0067] Among the automatic course carbon buttons S3, S3a is a whole body carbon button, and if ** "whole body carbon button S3a" is pushed in the condition which can be operated, and a lidding condition, it will start "whole body" course actuation. An easy setup is continued when it moves during course actuation at other courses.

[0068] Moreover, S3b is a neck and a shoulder carbon button, and if ** "a neck and shoulder carbon button S3b" is pushed in the condition which can be operated, and a lidding condition, it will start a neck and "shoulder" course actuation. An easy setup is continued when it moves during course actuation at other courses.

[0069] S3c is a waist carbon button, and if ** "waist carbon button S3c" is pushed in the condition which can be operated, and a lidding condition, it will start "waist" course actuation. An easy setup is continued when it moves during course actuation at other courses.

[0070] S3d is a back carbon button, and if ** "back carbon button S3d" is pushed in the condition which can be operated, and a lidding condition, it will start "back" (stretch) course actuation. An easy setup is continued when it moves during course actuation at other courses.

[0071] S3e is an acupressure carbon button, and if ** "acupressure carbon button S3e" is pushed in the condition which can be operated, and a lidding condition, it will

start "acupressure" course actuation. An easy setup is continued when it moves during course actuation at other courses. An example of the display mode in the display A at the time of choosing "a neck and a shoulder course" in this automatic course is shown in drawing 1414 .

[0072] S4 is an easy carbon button, in the case of an automatic course, can be rubbed and can weaken actuation partially. ***** actuation can be locked by push for continuation 2 seconds.

[0073] By pushing ** "easy carbon button S4" during automatic course actuation, a setup/discharge of an easy function are possible. Moreover, "easy carbon button S4" receives also in the middle of a course. An example of the display mode in the display A at the time of putting in drawing 15 and operating ** carbon button S4 is shown.

[0074] the free medical treatment after the time of being pushed at this time -- modification of a strength location is applied to a program. ** [a setup of an easy function / display / furthermore, / on Display A / an "easy" alphabetic character] -- having -- free medical treatment of a course -- the strength location of a program is changed into what was only programmed to "easy." in addition -- if an easy function is canceled -- the "easy" alphabetic character of Display A -- disappearing -- free medical treatment of a course -- the strength location of a program is returned to a "criterion" and a strength location is performed by whenever [standard strength]. An easy setup is succeeded even if the mode changes.

[0075] By the way, the optimal massage line to the point obtained with a bodily-shape detection means to mention later changes with each points. He considers the location which made offset wear on the assumption that it to be a criterion, and is trying to decide an "easy" location from there further. That is, "easy" actuation of an automatic course does not lower whenever [whole strength] simply, but it is made to perform it by the program of the strength location which was only suitable for "easy."

[0076] S5 is a reclining carbon button, and when raising or toppling a back board 3, it is used.

[0077] The back board 3 which is the reclining section when carbon button S5a which occurs is pushed occurs, and if falling carbon button S5b is pushed, a back board 3 will fall. As long as the main power supply is on, he is trying to always receive this reclining carbon button S5. Moreover, it is made to generate a sound, such as "PITSU", continuously, and he generates a sound which is called "Py", for example, and is trying to suspend migration of a back board 3 during migration of a back board 3 in a marginal location at the time of switch-on. Moreover, while pushing the carbon button of the direction of a limitation, it is made for the aforementioned "Py" sound of a marginal

location to continue sounding. In addition, it is good as a safety practice to prepare overcurrent detection. Moreover, if an overcurrent is detected during reclining actuation, he performs an error message and is trying to suspend actuation. It enables it not to make it operate at this time until it once shuts off a main power supply.

[0078] Moreover, air actuation is suspended during back board 3 migration (exhaust air). discharge of the reclining carbon button S5 returns air actuation from the beginning of the working part air.

[0079] S6 is vibes close / OFF carbon button, and changes close and OFF of vibes actuation. When vibes is close, LED lights up, and the light is put out when it is OFF.

[0080] If a book "vibes close / OFF carbon button S6" is pushed during a vibes halt, Vibes LED will light up and vibes actuation will be started. Moreover, if ** "vibes close / OFF carbon button S6" is pushed during vibes actuation, Vibes LED will put out the light and vibes actuation will be suspended.

[0081] He is trying for vibes actuation to operate independently with an individual function fundamentally. However, it does not stop at this in the time of termination of an individual function, or the case of a pause. For example, if it stops at the time of an individual function and vibes actuation, vibes actuation will also be suspended with massage actuation. Or after ending with a timer at the time of an automatic course / individual function, and vibes actuation, vibes actuation is also suspended with massage actuation.

[0082] S7 is heater close / OFF carbon button, and changes close and OFF of a heater. When a heater is close, LED lights up, and the light is put out when it is OFF.

[0083] During a heater halt, if "close / OFF carbon button S7" is pushed, heater lamp S7' will light up and heater actuation will be started. Moreover, during heater actuation, if "close / OFF carbon button S7" is pushed, heater lamp S7' will put out the light, and heater actuation will be suspended. actuation of a heater -- a maximum of 60 minutes -- carrying out -- free medical treatment of a mode timer (5 minute / 15 minutes), a massage timer (30 minutes), etc. -- it is made to become independent of time amount completely

[0084] S8 is a shoulder centering-control carbon button, and after shoulder location detection, when tuning a shoulder location finely, it is used.

[0085] After shoulder location detection termination, the shoulder location is shown, an up-and-down arrow-head display blinks, a "PIPPITSU" sound occurs, and "bottom" carbon button S8a and s8b await the location of massaging balls 5 and 6, and it will be in a condition. [of shoulder location fine-tuning a "top"] If "bottom" carbon button S8a and s8b are pushed in this condition, the location of massaging

balls 5 and 6 will be moved up and down, and a shoulder location will be adjusted. [of a "top"] It rubs in a little more than [:] in speed:** and strength, and is made to perform raising actuation during shoulder location fine tuning. In addition, while an up-and-down arrow-head display puts out the light, a shoulder centering-control carbon button is not received. Furthermore, while making shoulder location fine-tuning registration time amount into 5 seconds, let the range of fine tuning be an upper limit – outlying observation (– below mm).

[0086] Next, the switch carbon button which appears at the time of opening of remote control R is explained, referring to drawing 11 .

[0087] S9 is a shoulder location carbon button, and when carrying out shoulder location detection manually, it is used.

[0088] If the time of individual functional initiation or individual working, and "shoulder location carbon button S9" are pushed, the alphabetic character of a "shoulder location" will blink and shoulder location detection actuation will be started. That is, as shown in drawing 16 R> 6, it descends to ** location, massaging balls 5 and 6 are moved to the order to **-**, and the back is detected. Detection of the back makes massaging balls 5 and 6 project from a stowed position, and is performed by detecting the increment in the motor-load current at the time of massaging balls 5 and 6 being equivalent to the back.

[0089] In addition, when a shoulder omission (a strong location is detected before detecting the increment in motor ***** above detection point **) is carried out, the one half during the detection point carries out distance descent, and back detection is carried out again. When a shoulder omission is carried out, 1 / 4 distance descent is carried out, it stops, and if a shoulder omission is not carried out, 1 / 4 distance rise is carried out, and it stops. Moreover, if a shoulder location is an abnormal position, a re-detection important point etc. will be announced (shoulder location fine adjustment reception). In addition, it considers only as an announcement at the time of outlying observation (– below mm), and a massage is not performed. Let the range of fine tuning be an upper limit – outlying observation (– below mm). It rubs by : "a little more than" in speed: "**" and strength, and is made to perform raising actuation during shoulder location fine tuning. Furthermore, for 5 seconds, if you have no input, it is considering as the completion of shoulder location detection.

[0090] S10 is a feature button and can choose the class of massage actuation at the time of individual actuation.

[0091] if this feature button S10 is pushed, as shown in drawing 17 (a), an individual actuation selection menu ("-- rubbing -- raising" -- "-- rubbing -- lowering" -- "--

striking -- " -- a "ripple", a "flush", "*****", a "stretch", and "acupressure") will be displayed on the liquid crystal of Display A, and the inverse video of the present setup will be carried out. Moreover, as shown in drawing 17 (b), whenever it pushes "a feature button S10", an inverse video location changes, and a setup shown in inverse video after 2 seconds is decided.

[0092] It is the whole / partial carbon button, in case S11 performs back **** actuation of the whole or a part, it is used, and as shown in drawing 18, when individual massage actuation is omitted, it can set up the class of back *****. Moreover, back actuation can be started and suspended with this carbon button.

[0093] moreover, an individual massage -- if working and said [whole] / partial carbon button S11 will be pushed as shown in drawing 19, the setting menu (the "whole", a "part", "point") of the back related for *(ing) will be displayed on the liquid crystal of Display A, and the inverse video of the current setup will be carried out. Whenever it pushes "the whole / partial carbon button S11", an inverse video location changes, and a setup shown in inverse video is reflected after 2 seconds. Moreover, in the condition of having not carried out individual functional actuation, if "the whole / partial carbon button S11" is pushed direct, whole rolling will be started. In addition, the "point" is not displayed when "the whole / partial carbon button S11" is pushed in the condition of having not carried out individual functional actuation (refer to drawing 18).

[0094] S12 is 3D carbon button and performs 3D actuation by the massage unit (high MEKAYUNITTO) possessing four motors 23, 38, 57, and 67.

[0095] It rubs, it will have rubbed, it lowers, and 3D function will be set up, if it strikes and this the "3D carbon button S12" is pushed at the time of one actuation of the ripples. If 3D function is set up as shown in drawing 20, the alphabetic character of "3D" will be displayed on Display A, and migration actuation of a cross direction will be added to the above-mentioned actuation.

[0096] If "the 3D carbon button S12" is again pushed when 3D function is set up (when the alphabetic character of "3D" is displayed), the alphabetic character of "3D" will put out the light, 3D function will be canceled, and migration actuation of a cross direction will not be carried out. In addition, when having not selected the function, the 3D carbon button S12 is not received.

[0097] S13 is an air selection carbon button, and performs initiation of an air massage, and selection of a part.

[0098] If this air selection carbon button S13 is pushed, as shown in drawing 21, the setting menu (the "foot & peach & hips", a "foot & peach", the "foot & hips", a "foot",

and nothing ["nothing"]) about air will be displayed on the liquid crystal of Display A, and the inverse video of the present setup will be carried out. Whenever it pushes the air selection carbon button S13, an inverse video location changes, and a setup shown in inverse video is reflected after 2 seconds.

[0099] Moreover, air actuation is suspended during migration of a back board 3 (exhaust air). discharge of the reclining carbon button S5 returns air actuation from the beginning of the working part air. Moreover, to air actuation, vibes actuation is added in an initial state, and vibes actuation can be canceled by pushing vibes close / OFF carbon button S6 in it.

[0100] S14 is an air strength carbon button, and changes the strength of an air massage. The display mode of the display A when operating this air strength carbon button S14 to drawing 22 is shown.

[0101] If this the "air strength carbon button S14" is pushed during air actuation, the strength of air will change. Strength control of air is performed by changing air-supply time amount, and the one where the one where air-supply time amount is longer is [strength and air-supply time amount] shorter makes it weakness. In addition, the air-supply time amount of weakness is set up to 80% to the air-supply time amount of strength. Moreover, the ratio of strength can be set up on a substrate.

[0102] S15 is a mode timer circuit changing switch, and changes 5 minute and 15 minutes of a mode timer. In addition, a mode timer is the time limit in the massage mode according to each.

[0103] S16 is height / fine adjustment carbon button, and can perform accommodation of the height of a massaging ball. Moreover, a shoulder location can be finely tuned after shoulder location detection. An upper carbon button and S16b of S16a are bottom carbon buttons.

[0104] S17 is a carbon button in strength, and it is used for adjusting the strength by the cross direction at the time of individual actuation.

[0105] It lowers, and it has rubbed and accommodation of strength is [it rubs and / it strikes, and lengthens by the ripple and the section and] possible to six individual functions of the whole ****. As shown in drawing 23 , strength is between weak-strong locations (30mm), and makes accommodation possible in seven steps, and the set point is numerically displayed on Display A.

[0106] If "a little more than carbon button S17a" is pushed at the time of an individual function, it will raise from the current value on one step. When already set as max, nothing changes. On the other hand, if "weak carbon button S17b" is pushed at the time of an individual function, it will lower from the current value to the bottom of one

step. When already set as min, nothing changes. Continuation push is invalid and he is trying to fluctuate it one step at a time by single-engined push.

[0107] The back ** and accommodation is possible in strength also during "whole" "partial" "point" actuation. The back **, and when POINTONABI is already completed, "on the whole", position control based on the data of POINTONABI is performed, and the current position is updated each time and displayed. If a carbon button S17 is pushed in strength at this time, the data which were made to shift in the direction which had data of POINTONABI pushed on the whole, and were shifted to it will be held as new data. In addition, although the strength position representation section displays the current position during automatic course actuation, it does not receive "it is a carbon button S17 in strength" (adjustment is performed by "easy carbon button S4" in the strength of a massage).

[0108] S18 is a speed carbon button and can adjust the speed at the time of individual actuation.

[0109] If this speed carbon button S18 is pushed, as shown in drawing 24 , the setting menu ("it is "late", common ["common"], and quick") about speed will be displayed on Display A, and the inverse video of the present setup will be carried out. Whenever it pushes this speed carbon button S18, an inverse video location changes, and a setup shown in inverse video is reflected after 2 seconds.

[0110] It is a width-of-face carbon button, S19 is struck, and when adjusting width of face at the time of acupuncture, a stretch, and back **** actuation, it is used.

[0111] it is shown in drawing 25 -- as -- this width-of-face carbon button S19 -- the location of massaging balls 5 and 6 -- narrow/in /-- it can adjust to a large thing three-stage (rubbing -- business -- the location of massaging balls 5 and 6 is moved to an outside / middle / inside by the motor 67). If this the "width-of-face carbon button S19" is pushed, as shown in drawing 26 , the setting menu ("it is large") about width of face will be displayed on Display A, and the inverse video of the present setup will be carried out. ["it is narrow", it is "inside", and] Whenever it pushes this width-of-face carbon button S19, an inverse video location changes, and a setup shown in inverse video is reflected after 2 seconds.

[0112] S20 is a lid-open close switch, and is for detecting closing motion of a lid.

[0113] Next, the functional description which this massage machine 1 has is explained. The five ** following automatic course of the [automatic course functional] book massage machine 1 is selectable.

[0114] As for a lower half of the body, an air massage is performed by the course in which the "whole body course" upper half of the body and a lower half of the body

massage uniformly, in the above-mentioned guide-peg attaching part 1a and the taking-a-seat section 14.

[0115] "A neck and shoulder course" Although ** Li and near the lumbar part mainly include a neck and near a shoulder through the course massaged preponderantly, a lower half of the body is not contained.

[0116] "Waist course" It is the course which mainly massages preponderantly the lumbar part and a lower half of the body (air massage of the membrum inferius). The massage a neck and near a shoulder is also included.

[0117] "Back (stretch) course" It is the course which mainly massages stretched operation to a subject, and the air massage of a lower half of the body is also included.

[0118] "Acupressure course" It is the course which massages to a subject the acupressure actuation which is the actuation which mainly serves as a summary of this invention. In addition, the actuation is explained in full detail behind. Moreover, through this course, the air massage of a lower half of the body is not included.

[0119] When each automatic course described above is chosen, while the class of automatic course is displayed, by Display A, the notes at the time of the bodily-shape detection explained in full detail behind are displayed (refer to the drawing 1414). for example, -- " -- in order to carry out the massage suitable for your bodily shape, a POINTONABI function detects a bodily shape. In order to detect a more exact bodily shape, please do not move too much during POINTONABI actuation. It is " etc.

[0120] moreover -- Display A -- free medical treatment -- the display of conditions is made. this -- for example, a setup / un-setting up up, a strength location, height, residual time, and hibernation -- ** ***** -- etc. -- it is . [of the easy function mentioned later]

[0121] [Easy function] "Easy" is a function which weakens (thrust of a cross direction) in strength partially in the automatic course actuation mentioned above here. By pushing easy carbon button S4 during automatic course actuation, a setup and discharge of an easy function are possible. If set up, it will be displayed on Display A (refer to drawing 15).

[0122] The [individual massage functional] book massage machine 1 has ten kinds of following modes as an individual massage function, and these compound control actions are also possible for it. Moreover, in order to choose the massage function classified by each, if a feature button S10 is pushed, the ten above-mentioned kinds of functions are displayed on Display A and a display is made as drawing 17 showed, the function can be selected with this carbon button S10.

[0123] "-- MERIHARI of the rate that it is quick when it rubs and the raising"

massaging ball drive unit 9 approaches the body, and separating slowly can be attached. Rate control of 1 rotation is considered as 10% of change. Moreover, a setup of 3D actuation is possible and the compound control action which the back ** (the whole and part) is also still more possible.

[0124] “— MERIHARI of the rate that it is quick when it rubs and the lowering” massaging ball drive unit 9 approaches the body, and separating slowly can be attached. Rate control of 1 rotation is considered as 10% of change. Moreover, a setup of 3D actuation is possible and the compound control action which the back ** (the whole and part) is also still more possible.

[0125] “— the compound control action which is struck and” 3D actuation setup and the back ** (the whole and part) is also possible.

[0126] “Ripple” It rubs, strikes with lowering, and is the compound control action of **, and 3D actuation setup and the compound control action which the back ** (the whole and part) are also possible.

[0127] the massage gestalt which makes the important section of “acupressure” this example — it is — massaging balls 5 and 6 — from an initial valve position — ed — free medical treatment — a section (user’s body) side — pushing in — ed — free medical treatment — where the section is pressed and pressed, after carrying out predetermined time maintenance of these massaging balls 5 and 6, actuation pulled back to an initial valve position is performed.

[0128] The arrow head shows the motion of massaging balls 5 and 6 to drawing 27 , and the above-mentioned actuation is explained more concretely, referring to drawing:

[0129] That is, in acupressure actuation, to a strong location, massaging balls 5 and 6 stop after a protrusion, and carry out fixed time amount (this example about 1 second) maintenance. Then, raising upwards about 1cm, it is made to project about further 1-2cm, and moves to length actuation.

[0130] thus, the massaging balls 5 and 6 — only — marching out — ed — free medical treatment — acupressure unlike acupressure by the conventional massage machine which presses the section and retreats immediately, the force in which the body which had escaped by thrust to this time amount by maintenance actuation once being added tends to return acts as acupressure force, and according to a masseur’s hand — like — free medical treatment — the section and a jar can fully be pressed and the acupressure effectiveness can be pulled out.

[0131] Furthermore, the acupressure operation with conjointly very effective force in which the body which had escaped by thrust tends to return by performing the massage to the front which is made to project about further 1-2cm and massage

force to the front is given during maintenance, raising upwards about 1cm. Although the massage to the direction of the slanting front was illustrated by this example as a massage until it pulls back to an initial valve position, the protrusion actuation to the simple front also has the acupressure effectiveness enough heightened, after holding. [0132] Of course, after holding, it rubs in addition to the protrusion actuation to the direction of slant described above as a massage until it pulls back to an initial valve position, and those compound control actions etc. are variously considered by stretched operation and the pan actuation and in addition to the massage with [strike and] the protrusion component to the front like actuation.

[0133] The compound control action which the back ** (the whole and part) is also possible for this acupressure, and **** of the back and the compound control action of acupressure repeat acupressure by moving a using acupressure point one after another by rolling.

[0134] the direction of "*****" strength -- setting -- ***** -- it rubs and raising actuation is performed. free medical treatment by ***** -- only ***** actuation of an individual function operates. The compound control action which the back ** (the whole and part) is also possible, when carrying out a compound control action to **** of the back, it rubs and lowers at the time of descent, and it rubs at the time of a rise and it is considered as raising.

[0135] the direction of "flush" strength -- setting -- a flush location (it mentions later) -- it rubs and is raising actuation. The compound control action which the back ** (the whole and part) is also possible, when carrying out a compound control action to **** of the back, it rubs and lowers at the time of descent, and it rubs at the time of a rise and it is considered as raising.

[0136] As the arrow head of "stretch" drawing 28 shows, massaging balls 5 and 6 operate, the acupressure actuation and above back **, and it is a compound control action of operation. The compound control action which the back ** (the whole and part) is also possible.

[0137] back **** -- carrying out (part) -- it rolls about 50mm of upper and lower sides centering on the current location of massaging balls 5 and 6. Vertical migration of the center position can be carried out with height / fine adjustment carbon button S16. Initiation of operation is performed by actuation of the whole / partial carbon button S11. A halt of operation is performed by actuation of said [whole] / partial carbon button S11, and the pause carbon button S2. Above migration is to an upper limit limit switch LS (refer to drawing 1) location. When a stroke cannot be secured by the upper limit, the shoulder location, or the minimum, it considers as 100mm stroke

actuation from an upper limit, a shoulder location, or a minimum. It rubs, and it lowers, and strikes and strokes [it has rubbed and], and a compound control action with *****, a ripple, acupressure, and a stretch is possible. In addition, the migration direction is not reversed when it switches to the whole from a part.

[0138] the back -- *(ing) (whole) -- an upper limit and an upper limit to a minimum is repeated from a minimum, and it rolls. About the upper limit, when finishing [shoulder location detection] to the location of said upper limit limit switch LS in the state of un-detecting a shoulder location, it is carrying out to to the shoulder location. A halt of operation is performed by actuation of said [whole] / partial carbon button S11, and the pause carbon button S2. It rubs, and it lowers, and strikes and strokes-[it has rubbed and], and a compound control action with *****, a ripple, acupressure, and a stretch is possible. In addition, the migration direction is reversed when it switches to a part from the whole.

[3D mode function] 3D actuation -- rubbing -- striking -- etc. -- the thing of the motion which added migration actuation before and after basing on the massaging ball drive unit 9 (swing unit) at the time of actuation is pointed out. By pushing the 3D carbon button S12, it rubs and strikes and setup and discharge of 3D moving function can be performed to a ripple. If 3D function is set up at the time of individual actuation (having rubbed, rubbing, and lowering and striking either of the ripples) as mentioned above, he is trying to display the pictorial symbol of "3D" on Display A. Discharge also vanishes a pictorial symbol. In addition, a setup of 3D is made not to be succeeded, when a function is chosen and the mode changes (refer to the drawing 2020).

[0139] "-- 3D -- striking -- " -- while striking and attaching strength to actuation, it carries out by controlling speed. For example, in a weak location, **** is started slowly first, the rate struck while moving to a strong location is made quick to steps, and the rate struck while moving to a weak location further is made late to steps. In addition, it can reach in strength and speed can also be fixed. Accommodation of width of face is possible.

[0140] "-- 3D -- rubbing -- " -- it has rubbed, or it rubs and control of strength is followed on lowering. It rubs dividing between stowed position - strong locations into two or more steps, such as four etc. steps, and moving, and operates. Migration in the strong direction is performed in the location (broad) out of which massaging balls 5 and 6 come to the foremost. Also when carrying out migration initiation in the receipt direction, it carries out from the point in time of a broad location. In addition, it can reach in strength and speed can also be fixed.

[0141] "3D ripple" 3D It is the actuation which added **** for rubbing (rubbing

lowering).

[0142] [POINTONABI function] Working [said automatic course], with the bodily-shape detection means expressed below, this detects User's M bodily shape and performs massage actuation based on detection data. In this example, it is considering as the configuration equipped with a load current detection means to detect the load current under massage as a bodily-shape detection means, a coordinate detection means to detect the vertical position coordinate of a massaging ball, and a storage means to memorize the data from this coordinate detection means. as shown in drawing 29 , detection of a back location drives the motor 23 for rise and fall, and descends the massage unit 4 to the lowest end position which is User's M waist location -- making (f1) -- the motor 38 for an attitude drives and the massaging ball drive unit 9 is retreated in the method location of the last (f2). And drive the motor 38 for an attitude in the location, and turn massaging balls 5 and 6 ahead and they are made to project from a stowed position (f3). (-ed -- free medical treatment -- the back of the user who is the section -- turning) It memorizes with the storage means which built the strength location which detected the increment in the load current of the motor when hitting the back with the above-mentioned load current detection means in the control unit 16. (Coordinate conversion were carried out with the coordinate detection means through the control unit 16, and, specifically, the detection output of the rotary encoder 92 as an amount detection means for an attitude of drives is memorized with the storage means.) It carries out by making this into a back location. Then, the motor 38 for an attitude is driven, and the massaging ball drive unit 9 is back turned to the method location of the last, and it moves (f4). These (f3) actuation that reaches (f4) is used as the bodily-shape detection step of one unit.

[0143] Subsequently, the motor 23 for rise and fall is driven, and based on detection of the rotary encoder 91 as an amount detection means for rise and fall of drives, the massage unit 4 is raised (f5), and like ****, only predetermined distance drives the motor 38 for an attitude in the location, turns the massaging ball drive unit 9 ahead, and moves gradually (f6). What these actuation is repeated to a user's shoulder location, and is performed for (f7) detects the bodily shape of users, such as the height and width of face of User's M shoulder, and a configuration of the back. In addition, the massage unit 4 returns to an initial state (f2 location in drawing 29) after detection termination.

[0144] That is, as shown in drawing 16 , it becomes Rhine of the back to move massaging balls 5 and 6 to the order to 0-8, to detect a back location, and to be

obtained by detecting the existence of the back in an order from the bottom. When a shoulder omission is carried out during detection (when a strong location is detected before the detection point detected the increment in a motor-load current or more by four), the distance of the one half during the detection point is descended, and the back is detected again. And when a shoulder omission is carried out, 1 / 4 distance descent is carried out, it stops, and if a shoulder omission is not carried out, 1 / 4 distance rise is carried out, and it stops. Then, shoulder location fine tuning is received. If a shoulder location is an abnormal position, it will be made to announce a re-detection important point etc. In addition, a massage is not performed only as an announcement at the time of outlying observation. Let the range of fine tuning be an upper limit – outlying observation. During shoulder location fine tuning, it rubs in a little more than [:] in speed:** and strength, and raising actuation is performed. POINTONABI will be ended if there is no intercadence force for 5 seconds.

[0145] Moreover, a shoulder location is detectable by opening the lid R1 of remote control R, and pushing shoulder location carbon button S9. The display mode in the display A at that time is shown in drawing 30 .

[0146] The [air massage functional] book massage machine 1 equips a total of four places with the air cell for an air massage with a hip, a thigh, and the leg (two places), as mentioned above. if the air selection carbon button S13 is pushed at the time of an individual function -- an air massage -- the screen which chooses the part which gives free medical treatment is displayed on Display A. If 2 seconds pass where a part is chosen, air massage actuation of the part will be started (refer to drawing 21). In addition, as for an air massage, strength is changed in two steps of strength/weakness (refer to drawing 22). Moreover, the vibration actuation explained below is set up by the initial state in the case of air massage actuation, and vibration actuation can be canceled by pushing vibes close / OFF carbon button S6. Furthermore, air actuation will be suspended if the reclining carbon button S5 is pushed during an air massage (exhaust air). discharge of the reclining carbon button S5 returns air massage actuation from the beginning of the working part an air massage.

[0147] The [vibration (vibes) functional] book massage machine 1 has a vibes function in a hip. At the time of an individual function, if vibes close / OFF carbon button S6 is pushed and it will cut by performing vibes actuation, it will stop. Although it is set up at the time of air massage selection so that vibes actuation may be automatically made by the initial state, it is also possible to operate only the time of air actuation and coincidence by the vibes independent.

[0148] In addition, vibes actuation is included as a part of course actuation also during automatic course selection. However, a push on vibes close / OFF carbon button S6 excludes vibes actuation. If vibes close / OFF carbon button S6 is again pushed in the state of vibes discharge, vibes actuation will be again set up as a part of course actuation. The maximum time amount of vibes actuation is made into 15 minutes.

[0149] Moreover, he is trying to attach MERIHARI of strength to vibes actuation. For example, if it is at the air massage selection time, he is trying for the air supply and exhaust of a hip to be interlocked with (under air supply: under weakness and exhaust air : a little more than). If it is at the independent time, the synchronization of strength will be set up in the same cycle as the time of air use.

[0150] The massage machine 1 concerning [heater ability] this example contains the heater which is not illustrated. When it is used by the heater independent, he is trying to turn off automatically in a maximum of 60 minutes. moreover, the timer of a heater and the timer in each massage mode become independent -- making -- **** -- massage hibernation, start/receipt carbon button S1, etc. -- free medical treatment -- a heater is not turned off even if actuation stops

[0151] If a [electric reclining functional] electric power switch is ON, the electric reclining is always possible and it is also possible to raise only a back board 3 (ottoman) independently manually. When air actuation is being carried out at the time of reclining actuation, air massage actuation is suspended (exhaust air). discharge of the reclining carbon button S5 returns air massage actuation from the beginning of the working part an air massage.

[0152] In the [liquid crystal display and color change functional] display A, 128 (dot)x64 (dot) and the character display of 8 figure x4 line are possible. The liquid crystal which is Display A supposes that it is backlit, as mentioned above, and it can be changed to two yellow colors with red. It is made into yellow at the time of red and an individual function at the time of an automatic course. In addition, he is trying to display error No. on Display A, blinking red LED at the time of an error.

A [timer change functional] mode timer is 15 minutes as standard, and it is also possible to change to 5 minutes with a slide type switch (refer to drawing 11). Since a prolonged massage may become a burden to elderly people on the contrary especially, it enables it to choose 5 minutes. In addition, massage timer 30 minutes are not influenced with this mode timer. Moreover, he is trying for a slide type switch to check only a power up.

[0153] It is possible to lock so that [***** lock-function] ***** actuation may not be performed. He also depends this on consideration of elderly people, and is trying

not to serve as a too strong massage. easy carbon button S4 -- 2-second continuation **** -- he is trying to lock ***** actuation by things The sound which shows that the lock was received can be emitted at this time. In addition, discharge of a ***** lock function can be performed by turning off an electric power switch.

[0154] [actual actuation] -- if a favorite course is chosen from either of the automatic massage course carbon button S3 a-S3e in this massage machine 1 described above -- "-- taming -- fade-in massage" as a massage -- a massage is automatically performed in order of -> "bodily-shape detection" -> "two or more various massage modes" -> "a fade-out massage as a massage for cooling down."

[0155] For example, if "a shoulder and a neck course" are chosen among automatic massage courses, a fade-in massage will be performed first.

[0156] That is, in case the massage unit 4 which was in the up stowed position of an initial state descends toward a waist location, after having got down even to the shoulder location at least, it is set to the "flush location" which massaging balls 5 and 6 mentioned above, a rolling massage which strokes the whole back is performed, and it stops in a waist location. This flush rolling massage tames and it becomes the fade-in massage which is a massage.

[0157] Subsequently, although bodily-shape detection is performed by the above-mentioned POINTONABI function, as for the actuation so far, each step of operation is switched in the coordinate location of massaging balls 5 and 6.

[0158] if bodily-shape detection finishes -- as various massages -- a shoulder location **** message, a shoulder location **** message, and a shoulder location acupuncture massage -- the massage by the mode beforehand programmed with .. is performed. In this case, although, as for each massage performed, spotting is made based on bodily-shape data standard before bodily-shape detection, the massaging ball location of each massage is controlled based on the detected bodily-shape data after bodily-shape detection. In this massage mode, the change of each step of operation is made by not a coordinate location but the time amount of massaging balls 5 and 6.

[0159] And although a fade-out massage is finally performed, at this time, updrift of the massage unit 4 is carried out towards the upper part from a waist location, it strokes like a fade-in massage, the massage by rolling is performed, and the massage unit 4 is contained by the up stowed position which is an initial valve position. In addition, each step of operation is switched by the coordinate location of massaging balls 5 and 6 in this fade-out massage.

[0160] Thus, all the "shoulder and neck courses" that User M chose are completed.

[0161] In addition, by the above-mentioned fade-in massage and the above-mentioned fade-out massage, although the massage unit 4 was a one-way motion, it can set up suitably carrying out both-way actuation not only in this, or carrying out multiple-times round trip actuation etc. Moreover, as a gestalt of a fade-in fade-out massage, it may rub only not only in a rolling massage, for example, and a massage and an acupressure massage may be combined.

[0162] In addition, the above-mentioned fade IMMA surge and the above-mentioned fade-out massage may be omitted, and in that case, as shown in drawing 31 , processing of an automatic course is made in the stroke displayed on Display A.

[0163] Next, User M explains to a detail more the case where "acupressure" is chosen, by the individual massage function. In addition, bodily-shape detection shall already have been beforehand performed by the above-mentioned POINTONABI function here.

[0164] A user opens the lid R1 of remote control R, operates a feature button S10, and chooses "acupressure" (drawing 11). When the whole / partial carbon button S11 is pushed, for example, a compound control action is made to be carried out to the part of **** of the back at this time, massaging balls 5 and 6 It moves to near User's M waist, marches out from the "weak (L3)" location in drawing 8 by the stroke of 30mm of "a little more than (L5)" location ****, and stops for about 1 second in a "a little more than" location. Subsequently It marches out about 15 moremm, going up by about 10mm (** (L6) location), and actuation of retreating is performed. And while massaging balls 5 and 6 roll about 50mm of upper and lower sides centering on the active position, the same acupressure actuation is repeated setting time. If the deadline of is passed, massaging balls 5 and 6 will retreat and stand by to a stowed position.

[0165] thus -- the acupressure massage by this massage machine 1 -- -ed -- free medical treatment -- since actuation [like] which turned the predetermined time (about 1 second) press of the section up by the predetermined force ("a little more than"), and is pushed up up by the further more strong force ("**") (about 10mm) is performed, sufficient acupressure effectiveness it is ineffective to the former can be acquired, and KORI of the affected part etc. can be unfolded like acupressure by an acupressure therapist's hand.

[0166]

[Effect of the Invention] This invention is carried out with a gestalt which was explained above, and does so effectiveness which is indicated below.

[0167] (1) the massage unit which formed the massaging ball in this invention

according to claim 1 -- providing -- a massaging ball -- from an initial valve position -- -ed -- free medical treatment -- a section side -- pushing in -- -ed -- free medical treatment -- where the section is pressed and pressed, after carrying out predetermined-time maintenance of this massaging ball, since it has the acupressure massage mode pulled back to an initial valve position, sufficient acupressure effectiveness it is ineffective to the former can be acquired, and KORI of the affected part etc. can be unfolded like acupressure by an acupressure therapist's hand.

[0168] (2) In this invention according to claim 2, after carrying out predetermined time maintenance of this massaging ball in the condition of having pressed, by having inserted the massage actuation to the front, by the time it pulled back to the initial valve position, the body escapes by thrust and the fault in which the acupressure effectiveness fades can be canceled.

[0169] (3) In this invention according to claim 3, by having combined alternatively or suitably out of two or more massage modes containing acupressure mode, and having made the massage possible, KORI of the body can be unfolded with a variegated massage gestalt, and refresh of mind and body can be aimed at.

[0170] (4) While constituting from this invention according to claim 4 at a chair ceremony equipped with a seat body and a back board The elevator style which makes it go up and down a massage unit along with a back board is prepared. furthermore, this massage unit is made to rock a massaging ball to a cross direction -- striking -- business -- a motor -- eccentric rotation of the massaging ball is carried out -- rubbing -- business -- by having arranged the massaging ball drive unit possessing a motor, and moreover having constituted this massaging ball drive unit possible [an attitude] to the cross direction the whole massaging ball by the motor for an attitude While a user can receive a massage in the condition of having relaxed with the easy posture Change of the contact depth to the body of a massaging ball can be enlarged by enabling the attitude of a massaging ball drive unit, as mentioned above. And it can also perform easily controlling to be able to carry out fixed time amount maintenance of the massaging ball in the advance location, and an acupressure massage with the gestalt described above can be realized.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the side elevation of the massage machine concerning this invention.

[Drawing 2] It is the whole massage unit explanatory view.

[Drawing 3] It is an explanatory view by this front view.

[Drawing 4] It is an explanatory view by this plane view.

[Drawing 5] It is an explanatory view by the side view which strikes and shows a device.

[Drawing 6] It is an explanatory view by the side view which rubs and shows a device.

[Drawing 7] It is the explanatory view showing attitude migration of a massaging ball drive unit.

[Drawing 8] It is the explanatory view showing the attitude location of a massaging ball.

[Drawing 9] It is the block diagram showing a control unit.

[Drawing 10] It is the explanatory view of the lidding condition of remote control.

[Drawing 11] It is the explanatory view of the opening condition of remote control.

[Drawing 12] It is the explanatory view showing the display mode (at the time of start/receipt button grabbing) of a display.

[Drawing 13] It is the explanatory view showing the display mode (at the time of pause button grabbing) of a display.

[Drawing 14] It is the explanatory view showing the display mode (at the time of automatic course selection) of a display.

[Drawing 15] It is the explanatory view showing the display mode (at the time of easy button grabbing) of a display.

[Drawing 16] It is the explanatory view of bodily-shape detection actuation (POINTONABI).

[Drawing 17] It is the explanatory view showing the display mode (at the time of selection of an individual function) of a display.

[Drawing 18] It is the explanatory view showing the display mode (at the time of the whole / partial button grabbing) of a display.

[Drawing 19] it is the explanatory view showing the display mode (at the time of the whole / partial button grabbing (individual -- working)) of a display.

[Drawing 20] It is the explanatory view showing the display mode (at the time of 3D button grabbing) of a display.

[Drawing 21] It is the explanatory view showing the display mode (at the time of air selection button grabbing) of a display.

[Drawing 22] It is the explanatory view showing the display mode (at the time of air strength button grabbing) of a display.

[Drawing 23] It is the explanatory view showing the display mode (at the time [Strength] of button grabbing) of a display.

[Drawing 24] It is the explanatory view showing the display mode (at the time of speed button grabbing) of a display.

[Drawing 25] It is an explanatory view about width-of-face adjustment of a massaging ball.

[Drawing 26] It is the explanatory view showing the display mode (at the time of width-of-face button grabbing) of a display.

[Drawing 27] It is the explanatory view of acupressure actuation.

[Drawing 28] It is the explanatory view of stretched operation.

[Drawing 29] It is the explanatory view of bodily-shape Rhine detection processing.

[Drawing 30] It is the explanatory view showing the display mode (at the time of shoulder justification) of a display.

[Drawing 31] It is the explanatory view showing the display mode (at the time of automatic course selection) of a display.

[Description of Notations]

A Display

1 Massage Machine

2 Seat Body

3 Back Board

4 Massage Unit

5 Six Massaging ball

9 Massaging Ball Drive Unit

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